



Depression, anxiety, and psychological distress among caregivers of young children in rural Lesotho: Associations with food insecurity, household death and parenting stress



Marguerite Marlow^{a,*}, Sarah Skeen^{a,b}, Xanthe Hunt^a, Phillip Sundin^c, Robert E. Weiss^c, Shoeshoe Mofokeng^d, Moroosi Makhetha^a, Lucie Cluver^{e,f}, Lorraine Sherr^g, Mark Tomlinson^{a,h}

^a Institute for Life Course Health Research, Department of Global Health, Stellenbosch University, Stellenbosch, South Africa

^b Amsterdam Institute for Social Science Research, University of Amsterdam, Amsterdam, Netherlands

^c Department of Biostatistics, Fielding School of Public Health, University of California, Los Angeles, CA, USA

^d Department of Social Work, Sociology and Anthropology, National University of Lesotho, Lesotho

^e Centre for Evidence-Based Intervention, Department of Social Policy & Intervention, University of Oxford, Oxford, UK

^f Department of Psychiatry and Mental Health, University of Cape Town, Cape Town, South Africa

^g Institute for Global Health, University College London, London, UK

^h School of Nursing and Midwifery, Queens University, Belfast, UK

ARTICLE INFO

Keywords:

Mental health
Depression
Anxiety
Food insecurity
Parenting stress
Lesotho

ABSTRACT

Good mental health is a critical resource for mothers and caregivers of young children, given the central role of mental health in enabling responsive caregiving. However, fulfilling caregiving responsibilities under challenging circumstances such as extreme poverty, food insecurity, and gender inequality intensifies vulnerability to poor mental health. Previous research focuses on mental health of mothers, while in many LMICs children are cared for by other caregivers, such as grandparents. We examined the prevalence of mental health problems among primary caregivers of young children in rural Lesotho, and investigated factors associated with these mental health problems.

We analysed baseline data from a cluster randomised controlled trial, where all caregivers with children between 1 and 5 years old across 34 villages were invited to participate. The analysis included mental health data from 781 caregivers of 998 children. We assessed caregiver mental health using three self-report screening instruments. Univariate and multivariate regression modelling tested associations between caregiver, child and household variables and (1) depression symptoms (PHQ-9), (2) anxiety symptoms (GAD-7), (3) psychological distress (SRQ-20), (4) suicidal ideation and (5) help-seeking for mental health.

This study reported a high prevalence of symptoms of psychological distress (46.2%), depression (25.7%), anxiety (17.1%) and suicidal ideation (27.5%) among caregivers. Greater prevalence was associated with food insecurity, parenting stress or recent death in the family/household. Older caregivers reported higher rates of psychological distress and depression, while younger caregivers reported higher rates of anxiety. Suicidal ideation was associated with greater food insecurity and parenting stress, and lower caregiver education.

Our findings support the need to address intersecting public health issues to improve conditions for caregivers in these settings. Targeting modifiable risk factors such as food insecurity among individuals within a society who carry disproportionate burdens of caregiving should be prioritised, especially in contexts of scarcity, where mental health is not prioritised.

* Corresponding author.

E-mail addresses: marlow@sun.ac.za (M. Marlow), skeen@sun.ac.za (S. Skeen), xanthehuntwrites@gmail.com (X. Hunt), Phillip1492@ucla.edu (P. Sundin), robweiss@ucla.edu (R.E. Weiss), mofokengshoe@gmail.com (S. Mofokeng), makhetham@sun.ac.za (M. Makhetha), lucie.cluver@spi.ox.ac.uk (L. Cluver), l.sherr@ucl.ac.uk (L. Sherr), markt@sun.ac.za (M. Tomlinson).

<https://doi.org/10.1016/j.ssmmh.2022.100167>

Received 5 August 2022; Received in revised form 12 October 2022; Accepted 12 October 2022

Available online 14 October 2022

2666-5603/© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Compromised mental health has far-reaching implications for the functioning of individuals, communities and countries, contributing to increased years lived with disability (Vigo et al., 2016), greater health care expenditures and reduced economic opportunities (Bloom et al., 2011). Recognising these costs, mental health and wellbeing are specifically addressed in the global development goals for 2030 (United Nations, 2015). Despite an increased global focus on mental health in recent years (Collins and Saxena, 2016; Patel et al., 2018) people from low and middle-income countries (LMICs) continue to experience pervasive structural and social challenges that compromise their mental health (Lund et al., 2018). Mental health links prominently with other public health issues that persist in LMIC settings such as economic deprivation, HIV/AIDS and gender inequality (Jones, 2017; Lund et al., 2010; Patel and Kleinman, 2003).

LMICs carry 80% of the disease burden associated with depressive disorders (World Health Organization, 2017), and 76% of the world's suicides take place in these countries (Knipe et al., 2019). In addition, one in every four women in LMICs experience perinatal anxiety, suggesting higher prevalence rates compared to high income countries (Nielsen-Scott et al., 2022). While studies from LMICs are limited, evidence from systematic reviews show that anxiety and depressive disorders are highly correlated (Jacobsen and Newman, 2017; Saha et al., 2021). Despite this substantial burden, efforts to increase and improve service delivery for people affected by poor mental health in these settings remain inadequate (Evans-Lacko et al., 2018; Thornicroft et al., 2017). While the lack of equity around prevention and treatment exists between countries, there is also the issue of equity within countries – especially between urban and rural areas within LMICs (World Health Organization, 2018). As an example, research from South Africa demonstrated rural-urban and spatial differences (hotspots of mental ill health) in the prevalence of depression status, with those in urban areas showing lower levels of depression compared to those living in rural areas (Onuh et al., 2021).

Structural factors such as health infrastructure or social protection policies are important for mental health in that they determine the distribution of resources within a population and who has access to them (McAllister et al., 2018). Governance and policies related to education and health, as well as the social environments that shape gender norms and women's status in society (Borrell et al., 2014) are key drivers that determine why, how, and for whom good mental health is unattainable. Poverty leads to heightened risk of poor mental health by increasing exposure to risk factors such as adverse life events (Dobricki et al., 2010), food insecurity (Lund et al., 2010), and limited education and employment opportunities (Patel and Kleinman, 2003). Women may be especially prone to poor mental health in contexts characterised by poverty (Baron et al., 2016), where they are often responsible for the care of young children and the upkeep of their household. Fulfilling caregiving responsibilities under highly challenging circumstances intensifies vulnerability, particularly in gender unequal societies where women have limited economic agency (Smith and Mazure, 2021).

For mothers and other caregivers who fulfil the primary parenting role, good mental health is a critical resource to support the health and wellbeing of children in their care (Walker et al., 2007). Caregiver mental health is central to the provision of responsive caregiving (World Health Organization et al., 2018), which forms the basis of quality caregiver-child interactions and promotes optimal child development (Britto et al., 2016; Murray et al., 2003). Mental health problems such as maternal depression can compromise child development across a range of domains (Herba et al., 2016), including physical and cognitive development (Stein et al., 2014), and later mental health outcomes for the child (Sanger et al., 2015). Identifying caregivers in need of support is therefore crucial for both parental functioning and child wellbeing (Tsai et al., 2014).

While there is a growing body of evidence on perinatal mental health in LMICs, less is known about parent mental health past the first year of

childbirth. Most research has studied the mental health of mothers, while in many LMICs young children are cared for by other family members, such as grandparents. This is especially relevant in sub-Saharan Africa, where the HIV epidemic has significantly increased the number of orphans and vulnerable children (Monasch and Boerma, 2004). In addition, many parents from rural communities migrate to urban areas for work, leaving their children behind in the care of extended family.

Lesotho is a small, low-income country in southern Africa, where more than half the population (59.7%) live in extreme poverty (World Bank, 2019). The country has the second-highest adult HIV prevalence rate globally, at 23.8% (UNAIDS, 2017). One in four children are orphans, and over one-third of children do not live with either parent (Ministry of Health [Lesotho] & ICF International, 2016). Lesotho has no stand-alone governmental policy or policy plan for mental health, and human resources allocated to mental health are scarce (World Health Organization, 2011). Research about community-level mental health or access to services in the country has been extremely limited. In a small lowland town with a sample of 356 adults, Hollifield et al. (1990) reported the prevalence of depression at 12.4% and generalized anxiety disorder at 6.2%, using a structured psychiatric interview. More recently, depression has been studied in Lesotho using the Patient Health Questionnaire-9 (PHQ-9) screening tool among men who have sex with men (Stahlman et al., 2015), adult patients on antiretroviral treatment (69% female; Cerutti et al., 2016) and TB-HIV patients (53% male; Hayes-Larson et al., 2017). These studies reported moderate-severe depression symptoms at a rate of 16%, 29.8% and 28.8%, respectively. Using the PHQ-9, depression has also been studied among inmates living with HIV (88.3% male) from three correctional institutions in Lesotho (Mahlomaholo et al., 2021), with 53% reporting mild-severe symptoms of depression. To the best of our knowledge, mental health among women and caregivers of young children in Lesotho has not previously been studied.

In this paper, we examine the prevalence of depression, anxiety and psychological distress among caregivers of young children (ages 1–5 years) across 34 rural villages in Lesotho, and investigate the covariates of these mental health problems.

2. Methods

2.1. Design

The study reports on baseline data from the Mphatlalatsane (Early Morning Star) study, a cluster randomised controlled trial (RCT) of a parenting intervention conducted in rural Lesotho (Tomlinson et al., 2016). The study included 34 villages across the intervention and control arm and included all caregivers living in these communities with children between the ages of 1–5 years. The protocol was approved by the Health Research Ethics Committee at Stellenbosch University, (N14/09/127) and the Lesotho Ministry of Health (138–2014).

2.2. Setting

The study took place in the Mokhotlong district in north-eastern Lesotho, the district with the highest concentration of extreme poverty in the country (Ministry of Health [Lesotho] & ICF International, 2016). Villages are remote, some only accessible by foot or horse. The challenging terrain and severe weather conditions present significant barriers for families with young children in terms of food security and access to health and social services (Tomlinson et al., 2016).

2.3. Participants

All caregivers with children aged 1–5 years living in the study villages at the time of baseline assessments were approached to participate. Participants were included if the primary caregiver was 18 years or older, lived in the same house as the child for at least four nights per week, and

provided consent for themselves and their child/children to participate in the study. We analysed data from all child-caregiver dyads for whom we had baseline child assessment and caregiver interview data.

2.4. Procedures

Following agreement from the local chief and community leadership, trained recruiters went door-to-door to identify eligible caregiver-child dyads in each village. Caregivers were interviewed using a structured questionnaire, pre-programmed onto a tablet device. The interview consisted of questions about the household and the caregiver, and questions regarding the participating child/children (child demographics, care arrangements, child health, behaviour and development, and parenting practices). All questions were translated into Sesotho through a process of translation/back translation, group review and consensus. Interviews were conducted by data collectors who were fluent in both Sesotho and English, trained over a period of three weeks on ethics, informed consent, interviewing techniques, questionnaire administration, data management and referrals. Interviews were audio-recorded, and data were checked in weekly batches to allow for constant data-quality monitoring. Participants received a small package of groceries for their time. Participants who reported suicidal ideation were referred to a village health worker (where available) or to the nearest clinic. A qualified social worker within the local research team assisted with high-risk cases.

2.5. Measures

We assessed mental illness symptoms (depression, anxiety and non-specific psychological distress) using three self-report screening instruments:

Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9; Spitzer et al., 1999), recommended for screening of depression in LMICs (Ali et al., 2016). Higher scores on the PHQ-9 reflect more severe depression symptoms. While the PHQ-9 has not previously been validated for use in Lesotho, validation studies conducted in South Africa and Zimbabwe identified the measure as a useful screening tool for these settings (Carroll et al., 2020). In line with other studies conducted in Lesotho (Cerutti et al., 2016; Hayes-Larson et al., 2017; Stahlman et al., 2015), we used a cut-off score of 10 to establish the likelihood of a depressive disorder.

Anxiety was assessed using the Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006), with higher scores indicating higher symptoms of anxiety. In a systematic review of anxiety screening tools used in LMICs, the GAD-7 yielded some of the highest sensitivities for detection of generalized anxiety disorder (Mughal et al., 2020). A cut-off score of 10 can be used to establish the likelihood of an anxiety disorder (Mughal et al., 2020). The tool has not previously been used in Lesotho, but has been validated in South Africa (van Wijk et al., 2021) and Zimbabwe (Chibanda et al., 2016). Both the PHQ-9 and GAD-7 use a 4-point Likert scale to document symptoms over the past two weeks, with item scores ranging from 0 (not at all) to 3 (nearly every day).

Psychological distress was assessed using the Self-Report Questionnaire-20 (SRQ-20; Beusenberg et al., 1994), developed by the World Health Organization for use in a wide range of cultural contexts. The SRQ-20 uses a yes/no answer format to document symptoms of depression, anxiety, and somatic complaints over the past 30 days. The questionnaire has been validated and recommended for screening for common mental disorders in LMICs (Ali et al., 2016). Higher scores indicate higher rates of psychological distress. In line with studies conducted in other rural settings (Abdullahi et al., 2021; Stewart et al., 2011; Tuan et al., 2004), we used a cut-off of 8 to determine the presence of psychological distress equivalent to that of a probable mental health disorder.

Suicidal ideation was determined using one item each from the PHQ-9 (“Thoughts that you would be better off dead or of hurting yourself in some

way”) and the SRQ-20 (“Has the thought of ending your life been on your mind?”). We documented suicidal ideation as present if the participant responded positively to one or both of these items.

Help-seeking for mental health was documented by asking participants if they had met with any service provider (including a village health worker, religious advisor or traditional healer) about a mental health issue (described as feeling depressed, worried, stressed or having undergone difficulty) in the past year.

Socio-demographic factors: The questionnaire included questions about the primary caregiver (age, gender, education, marital status, employment status), the child (age, gender, relationship to caregiver) and the household (housing status, household density, illness and death in the household, income and resources).

Food Insecurity: We assessed household food insecurity with the 9-item Household Food Insecurity Access Scale (HFIAS; Deitchler et al., 2010), which has previously been used in other African countries (Desiere et al., 2015; Kneuppel et al., 2010; Nsabuwerwa et al., 2016; Regassa and Stoecker, 2012). Scores can range from 0 to 27, providing a continuous measure of the degree of food insecurity in the household in the past four weeks. The higher the score, the more food insecurity the household experienced.

Parental Stress: We used the 36-item short form of the Parenting Stress Index (PSI-SF). The index includes three subscales (Parental Distress, Parent-Child Dysfunctional Interaction and Difficult Child), with scores summed to calculate a Total Stress score, ranging from 36 to 180. We used the Total Stress score, which is designed to provide an indication of the overall level of parenting stress that a caregiver experiences. The tool has been validated in different socio-cultural contexts (Aracena et al., 2016; Dardas and Ahmad, 2014; Touchèque et al., 2016), and used in South Africa in different local languages (Potterton et al., 2007).

Alcohol use: We used the 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), which has been used in various LMICs (Allen et al., 2014). For the analysis, we used one item from the AUDIT that measures the frequency of alcohol use (never; monthly or less; 2–4 times a month; 2–3 times a week; 4 or more times a week). In addition to the AUDIT, caregivers were asked whether they, or anyone else in the household, sold alcohol or brews alcoholic beverages, such as traditional Sesotho beer.

2.6. Data analysis

To establish factors associated with caregiver mental health problems, univariate linear regression models were run with household, caregiver and child variables for each of the five mental health variables: (1) depression symptoms (PHQ-9), (2) anxiety symptoms (GAD-7), (3) psychological distress (SRQ-20), (4) suicidal ideation and (5) help-seeking for mental health. Covariates significant for at least three of the five mental health variables were then included in three multivariate models, one each for continuous depression (PHQ-9), anxiety (GAD-7), and psychological distress (SRQ-20). To establish factors associated with the dichotomous mental health variables (suicidal ideation; help-seeking for mental health), significant factors associated with mental health outcomes from the three multivariate models were then combined in two additional models. In the model for help-seeking for mental health, we used psychological distress (SRQ-20 score) as a predictor of help-seeking, as we hypothesised that scores on the SRQ-20 would potentially affect whether caregivers sought help for a mental health issue. The SRQ-20 was selected above the PHQ-9 and GAD-7, because the tool incorporates symptoms of both depression and anxiety.

3. Results

We enrolled 1040 children and their primary caregivers in the study. No eligible families living in the study villages refused to participate. We collected baseline data from 1020 (98%) children as 20 children were

either not available or not present in the village during the baseline assessment. To determine the rates of caregiver mental health problems and associated factors, we analysed data from the 998 children (96%) for whom caregiver baseline data were available. This resulted in mental health data from a total of 781 caregivers, since 200 caregivers participated with two or more children. There were 511 (51%) female children and 96% of caregivers were female. Over three-fifths of caregivers (61%) were the child's biological mother and 29% of children were cared for by their grandmother. Demographic characteristics are given in Table 1.

3.1. Prevalence of mental health symptoms and help-seeking for mental health

Table 2 summarises the prevalence of mental health symptoms among participating caregivers. In our sample, 25.7% of caregivers reported moderate to severe depression symptoms (a PHQ-9 score of 10 or more) and 17.1% of caregivers reported moderate to severe anxiety symptoms (a GAD-7 score of 10 or more). Psychological distress equivalent to that of a probable mental health disorder was present for 46.2% of caregivers (an SRQ-20 score of 8 or more). Suicidal ideation in the past month was reported by 27.5% of caregivers. In the preceding 12 months, 25.1% of caregivers had met with a service provider (including a village

Table 1 Demographic information.

Child characteristics (N = 998)	N (child)	%
Child gender		
Female	511	51.20%
Caregiver's relationship to child		
Biological mother	612	61.32%
Biological father	12	1.20%
Grandmother	289	28.96%
Grandfather	8	0.80%
Other relative	77	7.72%
Death in the child's family/household in the past year	116	11.62%
Caregiver characteristics (N = 781)	N (caregiver)	%
Caregiver gender		
Female	749	96%
Caregiver education		
No schooling	33	4.22%
Some primary schooling	526	67.35%
Some secondary schooling	201	25.74%
Completed secondary school/post-school diploma	21	2.69%
Caregiver age in years (n = 771)		
18-25	207	26.85%
26-45	367	47.60%
46+	197	25.55%
Caregiver relationship status (n = 772)		
Single/widowed/divorced/separated	177	22.93%
Married/living with partner	595	77.07%
Caregiver HIV status		
Unknown/Decline to Answer	20	2.57%
Positive	120	15.36%
Negative	641	82.07%
Household characteristics (N = 772)	N (caregiver)	%
Household Monthly Income in Maloti/ZAR ^a		
0-499	339	43.91%
500-1000	269	34.84%
1001+	155	20.08%
Don't know	9	1.17%
House has electricity	103	13.34%
Household owns a mobile phone	602	77.98%
Alcohol brewed in household (n = 772)	323	41.84%
	Range	Mean (SD)
Household food insecurity (HFIAS)	0-27	13.21 (7.19)

^a The Lesotho loti is equal to the South African Rand (ZAR). At the time of data collection, 1 USD was equivalent to 14.70 Maloti/ZAR.

Table 2 Mental health, parenting stress and substance use.

Mental health	n = 781	%
Depression (PHQ-9)		
None/minimal symptoms (PHQ-9 score of 0-4)	248	31.75%
Mild symptoms (PHQ-9 score of 5-9)	332	42.51%
Moderate-severe symptoms (PHQ-9 score of 10 or more)	201	25.74%
Anxiety (GAD-7) ^a		
None/minimal symptoms (GAD-7 score of 0-4)	331	42.87%
Mild symptoms (GAD-7 score of 5-9)	309	40.03%
Moderate-severe symptoms (GAD-7 score of 10 or more)	132	17.10%
Psychological distress (SRQ-20)		
Probable mental disorder (SRQ-20 score of 8 or more)	361	46.22%
Suicidal ideation		
Suicidal ideation in the past month	215	27.53%
Help-seeking for mental health ^b		
Sought out help for a mental health issue in the past 12 months	196	25.13%
Parenting stress	Range	Mean (SD)
Parenting Stress Index Short-Form Total Stress Score	36-177	106.7 (30.27)
Alcohol use ^b	n = 772	%
Caregiver brews own alcohol	529	68.52%
Frequency of alcohol use in the past 12 months		
None	508	65.80%
Monthly or less	165	21.37%
2-4 times a month	51	6.61%
3-4 times a week	30	3.89%
	Range	Mean (SD)
AUDIT total score		
All caregivers	0-31	1.51 (3.58)
Caregivers who consumed alcohol in the past 12 months	1-31	4.42 (5.03)
Caregivers who did not consume alcohol in the past 12 months	0-2	0.02 (0.19)

^a Missing: n = 9.

^b Missing: n = 1.

health worker, religious advisor or traditional healer) about a mental health issue. Among caregivers reporting suicidal ideation, only 33% (n = 72) reported help-seeking for mental health.

3.2. Factors associated with caregiver mental health

In univariate analyses, higher food insecurity and parenting stress were significantly associated with worse outcomes for all five mental health outcomes (depression, anxiety, psychological distress, suicidal ideation and help-seeking for mental health). Mobile phone ownership was also significant for all five mental health outcomes, where not owning a mobile phone was significantly associated with higher rates of psychological distress, anxiety and suicidal ideation, and owning a mobile phone was associated with greater depression and help-seeking for mental health. Death in the household or family in the past year, and being married or living with a partner were significantly associated with worse outcomes for four of the five mental health outcomes. Caregiver age and education were significantly associated with four of the five mental health outcomes, in different directions. Higher caregiver age was associated with increased depression, psychological distress and help-seeking for mental health, while younger caregiver age was significantly associated with higher anxiety and suicidal ideation. Lower levels of caregiver education were associated with higher depression, psychological distress, suicidal ideation and help-seeking, while higher levels of caregiver education was associated with higher levels of anxiety. Higher alcohol consumption and lower household monthly income were significantly associated with worse outcomes on three of the five mental health measures. Child male gender was significant for two out of the five outcomes, but was included in the multivariate models.

3.3. Factors associated with depression, anxiety and psychological distress

Table 3 shows the results from the multivariate regressions for depression, anxiety and psychological distress. Food insecurity, death in the household in the past year and parenting stress were significantly associated with higher symptoms of depression, anxiety and psychological distress. Older caregiver age was significantly associated with depression and psychological distress, while younger caregiver age was significantly associated with anxiety. In addition, a monthly household income of 1000 Maloti/ZAR (64 USD) or less, being married/living with a partner and monthly alcohol consumption were significantly associated with psychological distress.

Table 3
Multivariate mixed effect regressions with continuous mental health variables.

Psychological distress (SRQ-20)	Estimate	Std Error	t-value	p-value
Food insecurity (HFIAS Total)	0.23	0.02	11.4	<0.001
Parental stress (PSI total problem score)	0.06	0.01	13.0	<0.001
Caregiver education (years of schooling)	-0.09	0.06	-1.5	0.14
Caregiver age (years)	0.04	0.01	3.9	<0.001
Death in the family/household (past year)	1.02	0.42	2.5	0.01
Married/living with a partner	0.78	0.35	2.2	0.03
Child gender	-0.45	0.26	-1.7	0.09
Mobile phone ownership	-0.28	0.35	-0.8	0.43
Frequency of alcohol use	F-value = 3.79, p = 0.03			
Drinking monthly	0.88	0.34	2.7	0.01
Drinking more than twice a month	-0.13	0.41	-0.3	0.75
Household monthly income	F-value = 2.83, p = 0.06			
500–1000 Maloti/ZAR	-0.73	0.31	-2.4	0.02
1001–2000 Maloti/ZAR	-0.39	0.37	-1.0	0.29

Anxiety (GAD-7)	Estimate	Std Error	t-value	p-value
Food insecurity (HFIAS Total)	0.17	0.02	8.7	<0.001
Parental stress (PSI total problem score)	0.04	0.01	9.2	<0.001
Caregiver education (years of schooling)	0.03	0.06	0.4	0.67
Caregiver age (years)	-0.02	0.01	-2.1	0.03
Death in the family/household (past year)	1.05	0.41	2.6	0.01
Married/living with a partner	-0.27	0.34	-0.8	0.42
Child gender	-0.40	0.26	-1.6	0.12
Mobile phone ownership	-0.41	0.34	-1.2	0.22
Frequency of alcohol use	F-value = 0.48, p = 0.62			
Drinking monthly	0.32	0.33	1.0	0.33
Drinking more than twice a month	0.08	0.40	0.2	0.84
Household monthly income	F-value = 0.88, p = 0.42			
500–1000 Maloti/ZAR	-0.20	0.30	-0.7	0.50
1001–2000 Maloti/ZAR	0.28	0.36	0.8	0.44

Depression (PHQ-9)	Estimate	Std Error	t-value	p-value
Food insecurity (HFIAS Total)	0.22	0.02	10.2	<0.001
Parental stress (PSI total problem score)	0.03	0.01	4.9	<0.001
Caregiver education (years of schooling)	-0.03	0.07	-0.4	0.66
Caregiver age (years)	0.02	0.01	2.1	0.04
Death in the family/household (past year)	1.13	0.46	2.5	0.01
Married/living with a partner	0.16	0.38	0.4	0.68
Child gender	-0.25	0.29	-0.9	0.39
Mobile phone ownership	0.08	0.38	0.2	0.83
Frequency of alcohol use	F-value = 0.78, p = 0.46			
Drinking monthly	0.46	0.37	1.2	0.21
Drinking more than twice a month	0.11	0.45	0.3	0.80
Household monthly income	F-value = 1.85, p = 0.16			
500–1000 Maloti/ZAR	-0.03	0.34	-0.1	0.94
1001–2000 Maloti/ZAR	0.70	0.41	1.7	0.09

3.4. Factors associated with suicidal ideation and help-seeking for mental health

Table 4 shows the results from the multivariate regressions for suicidal ideation and help-seeking for mental health. Suicidal ideation in the past month was significantly associated with higher levels of food insecurity and parenting stress, and lower levels of caregiver education. Suicidal ideation was less likely if caregivers had a household income that was between 1001 and 2000 Maloti/ZAR (64–129 USD) per month.

Help-seeking for mental health in the past 12 months was significantly more likely with higher levels of psychological distress or food insecurity, with older caregiver age, lower levels of caregiver education, or if there was a death in the household or family in the past year.

4. Discussion

This study reported a high prevalence of symptoms of psychological distress (46.2%), depression (25.7%), anxiety (17.1%) and suicidal ideation (27.5%) among caregivers of children aged 1–5 years in rural Lesotho. To the best of our knowledge, this analysis is the first to investigate the mental health of parents and caregivers within this population. Caregivers were majority female and reported higher rates of mental health problems when they experienced stressors such as food insecurity, parenting stress or a death in the family/household in the past year. Caregivers reporting suicidal ideation experienced higher levels of food insecurity and parenting stress, and had lower levels of education and household income. Older caregivers reported higher rates of psychological distress and depression, while younger caregivers reported

Table 4
Multivariate regressions, generalized linear mixed models with binary outcome.

Suicidal ideation past month	Estimate	Std Error	t-value	p-value
Food insecurity (HFIAS Total)	0.04	0.01	3.5	0.001
Parental stress (PSI total stress score)	0.02	0.00	7.1	<0.001
Caregiver education (years of schooling)	-0.08	0.04	-2.2	0.03
Caregiver age (years)	-0.00	0.01	-0.7	0.48
Death in the family/household (past year)	0.20	0.23	0.9	0.37
Married/living with a partner	0.02	0.20	0.1	0.91
Child gender	-0.15	0.15	-1.0	0.32
Mobile phone ownership	-0.20	0.19	-1.0	0.30
Frequency of alcohol use	F-value = 1.28, 2 and 968 df, p-value = 0.28			
Drinking monthly	0.29	0.19	1.5	0.12
Drinking more than twice a month	0.17	0.23	0.8	0.45
Household monthly income	F-value = 0.19, 2 and 968 df, p-value = 0.83			
500–1000 Maloti/ZAR	-0.05	0.17	-0.3	0.77
1001–2000 Maloti/ZAR	-0.45	0.23	-2.0	0.05

Help-seeking for mental health past 12 months	Estimate	Std Error	t-value	p-value
Psychological distress (SRQ-20)	0.10	0.02	4.9	<0.001
Food insecurity (HFIAS Total)	0.03	0.01	2.5	0.01
Parental stress (PSI total stress score)	-0.00	0.00	-1.2	0.22
Caregiver education (years of schooling)	-0.08	0.04	-2.3	0.02
Caregiver age (years)	0.02	0.01	4.0	<0.001
Death in the family/household (past year)	0.47	0.23	2.0	0.04
Married/living with a partner	-0.26	0.20	-1.3	0.19
Child gender	0.19	0.16	1.2	0.25
Mobile phone ownership	0.30	0.21	1.5	0.15
Frequency of alcohol use	F-value = 1.44, 2 and 968 df, p-value = 0.26			
Drinking monthly	0.06	0.21	0.3	0.78
Drinking more than twice a month	0.38	0.23	1.7	0.10
Household monthly income	F-value = 2.06, 2 and 968 df, p-value = 0.13			
500–1000 Maloti/ZAR	0.03	0.19	0.2	0.86
1001–2000 Maloti/ZAR	0.14	0.24	0.6	0.54

higher rates of anxiety. While close to half of caregivers in the study reported rates of psychological distress symptoms equivalent to that of a probable mental health disorder, only one in four caregivers reported seeking out services for their mental health, with older caregivers and less educated caregivers more likely to seek out help.

In this setting, unfavourable structural conditions characterised by poverty, food insecurity and limited availability of services place caregivers of young children at a disproportionate disadvantage for achieving mental health (Allen et al., 2014; Sameroff and Rosenblum, 2006). Food insecurity was a prominent factor associated with caregivers' mental health. In Lesotho, scarce arable land and increasing periods of drought have resulted in chronic food insecurity and famine in rural areas (Mokhameleli, 2015). Caregivers in Mokhotlong rely heavily on subsistence agriculture to feed their families, but frequent droughts and extreme weather conditions severely limit food availability. Children in Mokhotlong are severely affected by these conditions, with a stunting prevalence of 48%, the highest in the country (Ministry of Health [Lesotho] & ICF International, 2016) and amongst the highest in the world. The implications of food insecurity and child undernutrition may be particularly distressing for female caregivers, especially in societies where women are considered responsible for the well-being and survival of their children. Considering women's central role in sourcing, preparing, and serving food for their households (Ivers and Cullen, 2011), food insecurity is a mental health risk factor that demonstrates gendered patterning in both low- and high-income settings (Carter et al., 2011; Tsai et al., 2012). Given the prominent environmental conditions that limit food availability in Lesotho, caregiver mental health is unlikely to improve by increasing access to mental health care alone. Rather, improving household access to food would alleviate a substantial amount of psychological distress for women, directly through relieving their lived experiences of poverty and scarcity (Weaver et al., 2021).

Experiencing a death in the family or household in the preceding year of the study was associated with depression, anxiety, psychological distress and help-seeking for mental health. In resource constrained settings, a family death may create a massive financial shock and from which few households can easily recover. Death in the household may also serve as a marker for susceptibility to more general psychosocial distress linked to factors not measured here, such as loss of income, caring for others with diminished health, or increased social responsibilities. Indeed, studies suggest that caregiving demands become more urgent and intensive during the end-of-life phase (Gibbons et al., 2014; Penrod et al., 2012). Responding to these demands, while simultaneously parenting a young child/children in a resource-constrained context would understandably intensify psychological distress, depression and anxiety.

One in four caregivers in our study were older than 45, and older caregivers reported higher symptoms of depression and psychological distress, similar to research from South Africa (Chhagan et al., 2014), Tanzania (Uriyo et al., 2013), Pakistan (Ali et al., 2009), Zimbabwe, India, Brazil, and Chile (Patel et al., 1999). In addition, more than one-third (37%) of caregivers were functioning as the primary caregiver for their grandchild, their sibling's or relative's child. Migration and HIV have increased the number of orphans and vulnerable children in the country, placing the burden of care for young children on older family members who are themselves vulnerable to poor mental health (World Health Organization, 2014). Fulfilling caregiving roles on behalf of family members are often born from necessity and may take its toll on caregivers' mental and emotional resources, especially for full-time grandmothers (Oburu and Palmè rus, 2003).

Linked to this, caregivers who reported parenting stress had higher symptoms of depression, anxiety, psychological distress, and suicidal ideation. Parenting is demanding under normal circumstances and fulfilling this role in contexts of scarcity is especially stressful. It is not clear from our data if poor mental health increases parenting stress through diminishing caregivers' capacity to engage in responsive caregiving, or whether difficulties in parenting erodes caregiver mental health, or

whether the relationship is cyclical. All scenarios will require increased efforts and resources to support caregivers at a community level to cope with the demands of parenting young children in conditions of adversity.

Caregiver age was important for help-seeking for mental health, with younger caregivers less likely to seek out services for their mental health problems. That younger caregivers were less likely to seek help mirrors past work from neighbouring South Africa, where younger persons were less likely to seek help for depression than older persons (Andersson et al., 2013). This suggests that younger caregivers are the ones for whom barriers to accessing support for their mental health are most acutely experienced. It is also important to note here that "service provider" was defined to include village health workers, religious advisors or traditional healers and in the majority of cases, caregivers reported that they had met with a village health worker or a primary health care provider. Mental health care in this context was therefore mainly provided by staff who likely do not have adequate mental health training, within a health system where referral pathways for specialised care is lacking. In addition, distance and travel time to health care facilities would be potentially important determinants of treatment-seeking behaviour (Zulian et al., 2011). This holds relevance for Lesotho, as the majority of the population (72%) travel to health facilities on foot, and for 27% their travel time to the nearest health facility exceeds 2 h (Ministry of Health [Lesotho] & ICF International, 2016).

Lesotho has a reported 181 mental health staff serving 2,097,513 million people (World Health Organization, 2015). Mental health services in this context will likely be provided by non-specialists working in facilities with an extremely high patient to provider ratio, serving communities with low levels of mental health awareness. Importantly, if all caregivers in our study who reported moderate to severe symptoms on the mental health screening tools were referred for diagnosis and treatment, the number of cases would likely overwhelm a health system already challenged in their capacity to offer regular health services, let alone diagnostic and outpatient mental health care (Kagee et al., 2013). In this context, intervention efforts should focus on universal mental health promotion and prevention at a community level, rather than on preventing or treating mental health disorders.

Community-based programmes that focus on developing resilience among caregivers living in adversity offer a more cost-effective option that serves to relieve mild to moderate symptoms while also preventing the development of more severe mental health problems. Rahman and colleagues (Rahman et al., 2008) argue that the relationship between maternal mental health and child health extends beyond mothers who are clinically depressed to mothers who experience sub-optimal mental health. It is these mothers who Rahman refer to as 'distressed' and who require intervention as a way to mediate between social adversity and poor child outcomes. Interventions that aim to empower and support caregivers, provide practical help and advice in a therapeutic approach can be integrated into the work of community health workers, as is evidenced by a number of high quality studies (Bolton et al., 2003; Cooper et al., 2009; Rahman et al., 2013). Addressing this within the community, rather than within health care systems will be important to reach the most vulnerable rural households, and could potentially buffer the effects of adversity, food insecurity and caregiving burden on mental health.

Interventions that include the wider family and community will be important to relieve the burden of care experienced by female caregivers in Lesotho. As an example, UNICEF's proposed Caring for the Caregiver package aims to build frontline workers' skills in strengths-based counselling to support the emotional well-being of caregivers through self-care, conflict resolution and stress management (Rochat et al., 2019). The programme activities include partners and the wider family in the sessions as a way to mobilise support for the caregiver within the household and the community. Self-help groups in Ghana have demonstrated improvements in mental health outcomes (Cohen et al., 2012). These groups were established to facilitate access to mental health services, but also provided a wider ranges of support services, including

assisting members with care responsibilities, access to credit or home visits to cook for their families. Importantly, change within the community will best be achieved through engaging existing community structures and support systems.

Interpretation of our findings is subject to several limitations. First, we used self-reported instruments, intended for use as mental health screening measures and not as definitive diagnoses, and these tools have not previously been validated for use in Lesotho. It was not within the scope of this research to validate these tools, although previous validation in this geographic context supported the appropriateness of their use in the current research (Carroll et al., 2020; Mughal et al., 2020). Determining the prevalence of depression in this context would require further study using a structured clinical interview to confirm the clinical prevalence of depression among this population – a costly and challenging study in light of the scarcity of local mental health specialists. Nevertheless, symptoms among individuals who do not meet diagnostic criteria still compromise quality of life and functioning (Judd et al., 2002). The high prevalence of psychological distress and probable depression reported in our sample offer important insights for future research and intervention efforts. Second, we are unable to establish causal relationships between variables, given the cross-sectional nature of the baseline data. For instance, a better understanding of the nature of the relationship between mental ill health and food insecurity will be important both for interventions designed to address the negative outcomes associated with food insecurity, as well as for our broader understanding of how scarcity impacts on wellbeing (Weaver et al., 2021)

5. Conclusion

Our findings support the need for increased efforts to address intersecting public health issues to improve conditions for caregivers in these settings, and for their children (Laurenzi et al., 2020). Structural factors and community resources tend to be neglected, but are potentially important and modifiable. Without improving the structural conditions in which caregivers are expected to raise their children, caregivers will continue to struggle to provide their children with responsive, nurturing care. Targeting modifiable risk factors such as food insecurity through existing initiatives will be important (Dewing et al., 2013). Linked to this, given the clinical and public health importance of mental health problems, food insecurity and caregiving stress to the wellbeing of both women and children, this study has important implications for policies and programmes aimed at improving parent and child health in resource-constrained settings. Importantly, promoting and supporting the mental wellbeing of individuals within a society who carry the disproportionate burden of caregiving should be prioritised, especially in contexts of scarcity, where mental health is often not recognised as a major health priority.

Ethics approval

The study was approved by the Health Research Ethics Committee at Stellenbosch University, (N14/09/127) and the Lesotho Ministry of Health (138–2014). All procedures performed were in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments.

Funding

The funder of the study was USAID-PEPFAR, funded under the Orphans and Vulnerable Children Special Initiative (BLC-FAA-15-64).

Consent to participate

Informed consent was obtained from all caregivers for themselves and their children to participate in the study.

Availability of data and material

Relevant documentation and data is available upon request to verify the validity of the results presented. Sensitive information in the form of confidential data is excluded.

CRedit authorship contribution statement

Marguerite Marlow: Project administration, Writing – review & editing. **Sarah Skeen:** Methodology, Supervision. **Xanthe Hunt:** Writing – original draft. **Phillip Sundin:** Data curation, Formal analysis. **Robert E. Weiss:** Supervision. **Shoeshoe Mofokeng:** Investigation. **Moroosi Makhetha:** Investigation. **Lucie Cluver:** Funding acquisition, Conceptualization. **Lorraine Sherr:** Funding acquisition, Conceptualization. **Mark Tomlinson:** Funding acquisition, Conceptualization.

Conflicts of interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

Acknowledgements

We are grateful to all the families who participated in this study, the data collection team, and partner organisations who supported the research process.

References

- Abdullahi, A. T., Farouk, Z. L., & Imam, A. (2021). Common mental disorders in mothers of children attending out-patient malnutrition clinics in rural North-western Nigeria: a cross-sectional study. *BMC Publ. Health*, *21*, 185.
- Allen, J., Balfour, R., Bell, R., & Marmot, M. (2014). Social determinants of mental health. *Int. Rev. Psychiatr.*, *26*(4), 392–407.
- Ali, N. S., Ali, B. S., & Azam, I. S. (2009). Post partum anxiety and depression in peri-urban communities of Karachi, Pakistan: a quasi-experimental study. *BMC Publ. Health*, *9*(1), 1–10.
- Ali, G. C., Ryan, G., & De Silva, M. J. (2016). Validated screening tools for common mental disorders in low and middle income countries: a systematic review. *PLoS One*, *11*(6), Article e0156939.
- Andersson, L. M., Schierenbeck, I., Strumpher, J., Krantz, G., Topper, K., Backman, G., Ricks, E., & Van Rooyen, D. (2013). Help-seeking behaviour, barriers to care and experiences of care among persons with depression in Eastern Cape, South Africa. *J. Affect. Disord.*, *151*(2), 439–448.
- Aracena, M., Gómez, E., Undurraga, C., Leiva, L., Marinkovic, K., & Molina, Y. (2016). Validity and reliability of the parenting stress index short form (PSI-SF) applied to a Chilean sample. *J. Child Fam. Stud.*, *25*(12), 3554–3564.
- Baron, E. C., Hanlon, C., Mall, S., Honikman, S., Breuer, E., Kathree, T., Luitel, N. P., Nakku, J., Lund, C., Medhin, G., & Patel, V. (2016). Maternal mental health in primary care in five low-and middle-income countries: a situational analysis. *BMC Health Serv. Res.*, *16*(1), 1–16.
- Beusenberg, M., Orley, J. H., & World Health Organization. (1994). *A User's Guide to the Self Reporting Questionnaire (SRQ)/compiled by M. Beusenberg and J. Orley. In A User's Guide to the Self Reporting Questionnaire (SRQ)/compiled by M. Beusenberg and J. Orley.*
- Bloom, D. E., Cafiero, E. T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L. R., Fathima, S., ... Weinstein, C. (2011). *The Global Economic Burden of Noncommunicable Diseases.* Geneva: World Economic Forum.
- Bolton, P., Bass, J., Neugebauer, R., Verdelli, H., Clougherty, K. F., Wickramaratne, P., Speelman, L., Ndongoni, L., & Weissman, M. (2003). Group interpersonal psychotherapy for depression in rural Uganda: a randomized controlled trial. *JAMA*, *289*, 3117–3124. <https://doi.org/10.1001/jama.289.23.3117>
- Borrell, C., Palència, L., Muntaner, C., Urquía, M., Malmusi, D., & O'Campo, P. (2014). Influence of macrosocial policies on women's health and gender inequalities in health. *Epidemiol. Rev.*, *36*(1), 31–48.
- Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., Vaivada, T., ... MacMillan, H. (2016). Nurturing care: promoting early childhood development. *Lancet*, *389*(10064), 91–102.
- Carroll, H. A., Hook, K., Perez, O. F. R., Denckla, C., Vince, C. C., Ghebrehwet, S., et al. (2020). Establishing reliability and validity for mental health screening instruments in resource-constrained settings: systematic review of the PHQ-9 and key recommendations. *Psychiatr. Res.*, *291*, Article 113236.
- Carter, K. N., Kruse, K., Blakely, T., & Collings, S. (2011). The association of food security with psychological distress in New Zealand and any gender differences. *Soc. Sci. Med.*, *72*(9), 1463–1471.
- Cerutti, B., Broers, B., Masetsibi, M., Faturiyeye, O., Toti-Mokoteli, L., Motlatsi, M., Bader, J., Klimkait, T., & Labhardt, N. D. (2016). Alcohol use and depression: link

- with adherence and viral suppression in adult patients on antiretroviral therapy in rural Lesotho, Southern Africa: a cross-sectional study. *BMC Publ. Health*, 16(1), 1–7.
- Chhagan, M. K., Mellins, C. A., Kauchali, S., Craib, M. H., Taylor, M., Kvalsvig, J. D., & Davidson, L. L. (2014). Mental health disorders among caregivers of preschool children in the Asenze Study in KwaZulu-Natal, South Africa. *Matern. Child Health J.*, 18(1), 191–199.
- Chibanda, D., Verhey, R., Gibson, L. J., Munetsi, E., Machando, D., Rusakaniko, S., et al. (2016). Validation of screening tools for depression and anxiety disorders in a primary care population with high HIV prevalence in Zimbabwe. *J. Affect. Disord.*, 198, 50–55.
- Cohen, A., Raja, S., Underhill, C., Yaro, B. P., Dokurugu, A. Y., De Silva, M., & Patel, V. (2012). Sitting with others: mental health self-help groups in northern Ghana. *Int. J. Ment. Health Syst.*, 6(1), 1–8.
- Cooper, P. J., Tomlinson, M., Swartz, L., Landman, M., Molteno, C., Stein, A., McPherson, K., & Murray, L. (2009). Improving quality of mother-infant relationship and infant attachment in socioeconomically deprived community in South Africa: randomised controlled trial. *BMJ*, 338.
- Collins, P. Y., & Saxena, S. (2016). Action on mental health needs global cooperation. *Nature News*, 532(7597), 25.
- Dardas, L. A., & Ahmad, M. M. (2014). Psychometric properties of the Parenting Stress Index with parents of children with autistic disorder. *J. Intellect. Disabil. Res.*, 58(6), 560–571.
- Deitchler, M., Ballard, T., Swindale, A., & Coates, J. (2010). *Validation of a Measure of Household Hunger for Cross-Cultural Use*. Washington, DC: Food and Nutrition Technical Assistance II Project (FANTA-2), Academy for Educational Development.
- Desiere, S., D'Haese, M., & Niragira, S. (2015). Assessing the cross-sectional and inter-temporal validity of the household food insecurity access scale (HFIAS) in Burundi. *Publ. Health Nutr.*, 18(15), 2775–2785.
- Dewing, S., Tomlinson, M., le Roux, I. M., Chopra, M., & Tsai, A. C. (2013). Food insecurity and its association with co-occurring postnatal depression, hazardous drinking, and suicidality among women in peri-urban South Africa. *J. Affect. Disord.*, 150(2), 460–465.
- Dobricki, M., Komproe, I. H., de Jong, J. T., & Maercker, A. (2010). Adjustment disorders after severe life-events in four postconflict settings. *Soc. Psychiatr. Psychiatr. Epidemiol.*, 45(1), 39–46.
- Evans-Lacko, S., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Benjet, C., Bruffaerts, R., Chiu, W. T., Florescu, S., De Girolamo, G., Gureje, O., & Haro, J. M. (2018). Socio-economic variations in the mental health treatment gap for people with anxiety, mood, and substance use disorders: results from the WHO World Mental Health (WMH) surveys. *Psychol. Med.*, 48(9), 1560–1571.
- Gibbons, S. W., Ross, A., & Bevans, M. (2014). Liminality as a conceptual frame for understanding the family caregiving rite of passage: an integrative review. *Res. Nurs. Health*, 37(5), 423–436.
- Hayes-Larson, E., Hirsch-Moverman, Y., Saito, S., Frederix, K., Pitt, B., Maama-Maime, L., & Howard, A. A. (2017). Depressive symptoms and hazardous/harmful alcohol use are prevalent and correlate with stigma among TB-HIV patients in Lesotho. *Int. J. Tubercul. Lung Dis.*, 21(11), S34–S41.
- Herba, C. M., Glover, V., Ramchandani, P. G., & Rondon, M. B. (2016). Maternal depression and mental health in early childhood: an examination of underlying mechanisms in low-income and middle-income countries. *Lancet Psychiatr.*, 3(10), 983–992.
- Hollifield, M., Katon, W., Spain, D., & Pule, L. (1990). Anxiety and depression in a village in Lesotho, Africa: a comparison with the United States. *Br. J. Psychiatr.*, 156(3), 343–350.
- Ivers, L. C., & Cullen, K. A. (2011). Food insecurity: Special considerations for women. *Am. J. Clin. Nutr.*, 94(6), 1740S–1744S.
- Jacobsen, N. C., & Newman, M. G. (2017). Anxiety and depression as bidirectional risk factors for one another: a meta-analysis of longitudinal studies. *Psychol. Bull.*, 143, 1155–1200.
- Jones, A. D. (2017). Food insecurity and mental health status: a global analysis of 149 countries. *Am. J. Prev. Med.*, 53(2), 264–273.
- Judd, L. L., Schettler, P. J., & Akiskal, H. S. (2002). The prevalence, clinical relevance, and public health significance of subthreshold depressions. *Psychiatr. Clin.*, 25(4), 685–698.
- Kagee, A., Tsai, A. C., Lund, C., & Tomlinson, M. (2013). Screening for common mental disorders in low resource settings: reasons for caution and a way forward. *International Health*, 5(1), 11–14.
- Knipe, D., Williams, A. J., Hannam-Swain, S., Upton, S., Brown, K., Bandara, P., Chang, S. S., & Kapur, N. (2019). Psychiatric morbidity and suicidal behaviour in low- and middle-income countries: a systematic review and meta-analysis. *PLoS Med.*, 16(10), Article e1002905.
- Knuettel, D., Demment, M., & Kaiser, L. (2010). Validation of the household food insecurity access scale in rural Tanzania. *Publ. Health Nutr.*, 13(3), 360–367.
- Laurenzi, C., Field, S., & Honikman, S. (2020). Food insecurity, maternal mental health, and domestic violence: a call for a syndemic approach to research and interventions. *Matern. Child Health J.*, 24(4), 401–404.
- Lund, C., Breen, A., Flisher, A. J., Kakuma, R., Corrigall, J., Joska, J. A., Swartz, L., & Patel, V. (2010). Poverty and common mental disorders in low and middle income countries: a systematic review. *Soc. Sci. Med.*, 71(3), 517–528.
- Lund, C., Brooke-Sumner, C., Baingana, F., Baron, E. C., Breuer, E., Chandra, P., Haushofer, J., Herrman, H., Jordans, M., Kieling, C., & Medina-Mora, M. E. (2018). Social determinants of mental disorders and the Sustainable Development Goals: a systematic review of reviews. *Lancet Psychiatr.*, 5(4), 357–369.
- Mahlomaholo, P. M., Wang, H., Xia, Y., Wang, Y., Yang, X., & Wang, Y. (2021). Depression and suicidal behaviors among HIV-infected inmates in Lesotho: prevalence, associated factors and a moderated mediation model. *AIDS Behav.*, 1–12.
- McAllister, A., Fritzell, S., Almroth, M., Harber-Aschan, L., Larsson, S., & Burström, B. (2018). How do macro-level structural determinants affect inequalities in mental health?—a systematic review of the literature. *Int. J. Equity Health*, 17(1), 1–14.
- Ministry of Health (MOH) Lesotho & ICF International. (2016). *Lesotho Demographic and Health Survey 2014. Maseru, Lesotho: MOH and ICF International*. Retrieved from <https://dhsprogram.com/publications/publication-fr309-dhs-final-reports.cfm>.
- Mokhameleli, S. (2015). Hunger and food security dynamic: an empirical study of the Moteng Community Council in Lesotho. *J. Public Adm.*, 50(2), 299–307.
- Monasch, R., & Boerma, J. T. (2004). Orphanhood and childcare patterns in sub-Saharan Africa: an analysis of national surveys from 40 countries. *AIDS*, 18, S55–S65.
- Mughal, A. Y., Devadas, J., Ardman, E., Levis, B., Go, V. F., & Gaynes, B. N. (2020). A systematic review of validated screening tools for anxiety disorders and PTSD in low to middle income countries. *BMC Psychiatr.*, 20(1), 1–18.
- Murray, L., Cooper, P., & Hipwell, A. (2003). Mental health of parents caring for infants. *Arch. Wom. Ment. Health*, 6(2), s71–s77.
- Nielsen-Scott, M., Fellmeth, G., Opondo, C., & Alderdice, F. (2022). Prevalence of perinatal anxiety in low- and middle-income countries: a systematic review and meta-analysis. *J. Affect. Disord.*, 306, 71–79.
- Nsabuweru, V., Hedt-Gauthier, B., Khogali, M., Edginton, M., Hinderaker, S. G., Nisingizwe, M. P., de Dieu Tihabyona, J., Sikubwabo, B., Sembagare, S., Habinshtuti, A., & Drobac, P. (2016). Making progress towards food security: evidence from an intervention in three rural districts of Rwanda. *Publ. Health Nutr.*, 19(7), 1296–1304.
- Oburu, P. O., & Palmé rus, K. (2003). Parenting stress and self-reported discipline strategies of Kenyan caregiving grandmothers. *IJBD (Int. J. Behav. Dev.)*, 27(6), 505–512.
- Onuh, J. C., Mbah, P. O., Chuckwueozie, K. A., Orjiakor, C. T., Igboeli, E. E., & Ayogu, C. K. (2021). Rural-urban appraisal of the prevalence and factors of depression status in South Africa. *Journal of Affective Disorder Reports*, 4, Article 100082.
- Patel, V., Araya, R., De Lima, M., Ludermer, A., & Todd, C. (1999). Women, poverty and common mental disorders in four restructuring societies. *Soc. Sci. Med.*, 49(11), 1461–1471.
- Patel, V., & Kleinman, A. (2003). Poverty and common mental disorders in developing countries. *Bull. World Health Organ.*, 81, 609–615.
- Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., Chisholm, D., Collins, P. Y., Cooper, J. L., Eaton, J., & Herrman, H. (2018). The Lancet Commission on global mental health and sustainable development. *Lancet*, 392(10157), 1553–1598.
- Penrod, J., Hupcey, J. E., Shipley, P. Z., Loeb, S. J., & Baney, B. (2012). A model of caregiving through the end of life: seeking normal. *West. J. Nurs. Res.*, 34(2), 174–193.
- Potterton, J., Stewart, A., & Cooper, P. (2007). Parenting stress of caregivers of young children who are HIV positive. *Afr. J. Psychiatr.*, 10(4), 210–214.
- Rahman, A., Fisher, J., Bower, P., Luchters, S., Tran, T., Yasami, M. T., Saxena, S., & Waheed, W. (2013). Interventions for common perinatal mental disorders in women in low- and middle-income countries: a systematic review and meta-analysis. *Bull. World Health Organ.*, 91, 593–601.
- Rahman, A., Patel, V., Maseko, J., & Kirkwood, B. (2008). The neglected 'm' in MCH programmes: why mental health of mothers is important for child nutrition. *Trop. Med. Int. Health*, 13(4), 579–583.
- Regassa, N., & Stoecker, B. J. (2012). Household food insecurity and hunger among households in Sidama district, southern Ethiopia. *Publ. Health Nutr.*, 15(7), 1276–1283.
- Rochat, T. J., Redinger, S., Rozentals-Thresher, R., Yousafzai, A., & Stein, A. (2019). *Caring for the Caregiver*. New York: UNICEF.
- Saha, S., Lim, C. C. W., Cannon, D. L., Burton, L., Bremner, M., Cosgrove, P., & McGrath, J. J. (2021). Co-morbidity between mood and anxiety disorders: a systematic review and meta-analysis. *Depress. Anxiety*, 38, 286–306.
- Sameroff, A. J., & Rosenblum, K. L. (2006). Psychosocial constraints on the development of resilience. *Ann. N. Y. Acad. Sci.*, 1094, 116–124.
- Sanger, C., Iles, J. E., Andrew, C. S., & Ramchandani, P. G. (2015). Associations between postnatal maternal depression and psychological outcomes in adolescent offspring: a systematic review. *Arch. Wom. Ment. Health*, 18(2), 147–162.
- Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, 88(6), 791–804.
- Smith, M. V., & Mazure, C. M. (2021). Mental health and wealth: depression, gender, poverty, and parenting. *Annu. Rev. Clin. Psychol.*, 17, 181–205.
- Spitzer, R. L., Kroenke, K., Williams, J. B., & Patient Health Questionnaire Primary Care Study Group. (1999). Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *JAMA*, 282(18), 1737–1744.
- Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch. Intern. Med.*, 166(10), 1092–1097.
- Stahlman, S., Grosso, A., Ketende, S., Sweitzer, S., Mothopeng, T., Tarubekera, N., Nkonyana, J., & Baral, S. (2015). Depression and social stigma among MSM in Lesotho: implications for HIV and sexually transmitted infection prevention. *AIDS Behav.*, 19(8), 1460–1469.
- Stein, A., Pearson, R. M., Goodman, S. H., Rapa, E., Rahman, A., McCallum, M., Howard, L. M., & Pariante, C. M. (2014). Effects of perinatal mental disorders on the fetus and child. *Lancet*, 384(9956), 1800–1819.
- Stewart, R. C., Bunn, J., Vokhiwa, M., Umar, E., Kauye, F., Tomenson, B., et al. (2011). A prospective study of psychological distress among mothers of children admitted to a nutritional rehabilitation unit in Malawi. *Child Care Health Dev.*, 37(1), 55–63.

- Thornicroft, G., Chatterji, S., Evans-Lacko, S., Gruber, M., Sampson, N., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Andrade, L., Borges, G., & Bruffaerts, R. (2017). Undertreatment of people with major depressive disorder in 21 countries. *Br. J. Psychiatr.*, *210*(2), 119–124.
- Tomlinson, M., Skeen, S., Marlow, M., Cluver, L., Cooper, P., Murray, L., Mofokeng, S., Morley, N., Makhetha, M., Gordon, S., Esterhuizen, T., & Sherr, L. (2016). Improving early childhood care and development, HIV-testing, treatment and support, and nutrition in Mokhotlong, Lesotho: study protocol for a cluster randomized controlled trial. *Trials*, *17*(1), 1–13.
- Touchéque, M., Etienne, A. M., Stassart, C., & Catale, C. (2016). Validation of the French version of the parenting stress index–short form. *J. Community Psychol.*, *44*(4), 419–425.
- Tsai, A. C., Bangsberg, D. R., Frongillo, E. A., Hunt, P. W., Muzoora, C., Martin, J. N., & Weiser, S. D. (2012). Food insecurity, depression and the modifying role of social support among people living with HIV/AIDS in rural Uganda. *Soc. Sci. Med.*, *74*(12), 2012–2019.
- Tsai, A. C., Tomlinson, M., Dewing, S., Le Roux, I. M., Harwood, J. M., Chopra, M., & Rotheram-Borus, M. J. (2014). Antenatal depression case finding by community health workers in South Africa: feasibility of a mobile phone application. *Arch. Wom. Ment. Health*, *17*(5), 423–431.
- Tuan, T., Harpham, T., & Huong, N. T. (2004). Validity and reliability of the self-reporting questionnaire 20 items in Vietnam. *Hong Kong J. Psychiatr.*, *14*, 15–18.
- UNAIDS. (2017). *Lesotho Country Factsheet*. Geneva, Switzerland: UNAIDS. Retrieved from <http://www.unaids.org/en/regionscountries/countries/lesotho>.
- United Nations. (2015). *Transforming Our World: the 2030 Agenda for Sustainable Development*. New York, NY: United Nations. Retrieved from: <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.
- Uriyo, J. G., Abubakar, A., Swai, M., Msuya, S. E., & Stray-Pedersen, B. (2013). Prevalence and correlates of common mental disorders among mothers of young children in Kilimanjaro region of Tanzania. *PLoS One*, *8*(7), Article e69088.
- van Wijk, Charles, H., Martin, Jarred H., & Maree, David J. F. (2021). Clinical validation of brief mental health scales for use in South African occupational healthcare. *SA J. Ind. Psychol.*, *47*(1), 1–17.
- Vigo, D., Thornicroft, G., & Atun, R. (2016). Estimating the true global burden of mental illness. *Lancet Psychiatr.*, *3*(2), 171–178.
- Walker, S. P., Wachs, T. D., Gardner, J. M., Lozoff, B., Wasserman, G. A., Pollitt, E., Carter, J. A., & International Child Development Steering Group. (2007). Child development: risk factors for adverse outcomes in developing countries. *Lancet*, *369*(9556), 145–157.
- Weaver, L. J., Owens, C., Tessema, F., Kebede, A., & Hadley, C. (2021). Unpacking the “black box” of global food insecurity and mental health. *Soc. Sci. Med.*, *282*, Article 114042.
- World Bank. (2019). *Country Profile: Lesotho*. Retrieved from https://databank.worldbank.org/data/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=LSO.
- World Health Organization. (2017). *Depression and Other Common Mental Disorders: Global Health Estimates*. Geneva: World Health Organization, 2017. Licence: CC BY-NC-SA 3.0 IGO.
- World Health Organization. (2011). *Mental Health Atlas: 2011*. World Health Organization. <https://apps.who.int/iris/handle/10665/44697>.
- World Health Organization. (2015). *Mental Health Atlas 2014*. World Health Organization. <https://apps.who.int/iris/handle/10665/178879>.
- World Health Organization. (2018). *Mental Health Atlas 2017*. Geneva: World Health Organization, 2018. Licence: CC BY-NC-SA 3.0 IGO.
- World Health Organization. (2014). *Social Determinants of Health*. Geneva: World Health Organization. ISBN 978 92 4 150680 9.
- World Health Organization, United Nations Children’s Fund, World Bank Group. (2018). *Nurturing Care for Early Childhood Development: a Framework for Helping Children Survive and Thrive to Transform Health and Human Potential*. Geneva: World Health Organization, 2018. Licence: CC BY-NC-SA 3.0 IGO.
- Zulian, G., Donisi, V., Secco, G., Pertile, R., Tansella, M., & Amaddeo, F. (2011). How are caseload and service utilisation of psychiatric services influenced by distance? A geographical approach to the study of community-based mental health services. *Soc. Psychiatr. Psychiatr. Epidemiol.*, *46*(9), 881–891.